

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION**

**ORDER R7-2014-0060**

**WASTE DISCHARGE REQUIREMENTS AND  
MONITORING AND REPORTING PROGRAM  
FOR  
LAKE ENTERPRISES OF CALIFORNIA LLC, OWNER/G2 BIO LLC, OPERATOR  
PICACHO GOLD RECOVERY PROJECT, PICACHO MINE**

North of Winterhaven - Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Basin Water Board), finds that:

1. The Picacho Gold Recovery Project is proposing to recover gold from Heap Leach Pad 5 at the Picacho Mine located at 3475 Picacho Road Mine, Imperial County (Facility) as shown on Attachment A (Site Location Map) incorporated herein and made part of this Order by reference. Lake Enterprises of California, LLC, 1010 Northern Boulevard, Suite 200, Great Neck, NY 11021 is the owner of the Picacho Mine. G2 Bio LLC, located at 90 US Highway 130, Bordentown, NJ 08505 is the proposed operator (Discharger) of the project. The Discharger submitted a Report of Waste Discharge (ROWD) and an application for Waste Discharge Requirements (WDRs) including Form 200, to the Colorado River Basin Water Board on August 15, 2014.
2. The Facility is assigned the California Integrated Water Quality System (CIWQS) WDID No. 7B 13 2141 006 and Geotracker Global ID L10006029302.
3. The Facility is located on portions of six Imperial County assessor's parcels (APN 042-220-11,-12,-14,-16,-17 and -20). The boundaries of the Facility and Heap Leach Pad 5 are shown on Attachment B, incorporated herein and made part of this Order by reference.
4. The mine was previously regulated by Board Order 92-009, which was rescinded by Board Order 01-097 on May 15, 2001 after the mine was closed.
5. The Picacho Mine is designated S-2 by Title 9 of the Imperial County Land Use Ordinance. The S-2 designation is considered to be an Open Space Preservation Zone. The primary intent of S-2 zoning is to preserve the cultural, biological, and open space areas of Imperial County that are rich in natural and cultural resources. The S-2 Zone is dominated by native desert habitat and stark topographic features.
6. The only neighboring public land use in the project area is the Picacho State Recreation Area located approximately five miles to the north of the site along the Colorado River.
7. The Discharger plans to further process existing Heap Leach Pad 5. No additional gold bearing ore will be mined or placed on this existing pad. Operations at Heap Leach Pad 5 are the subject of this Order. Equipment associated with the carbon absorption gold

leaching process will be located to the north and north east of the existing heap leach pad and are shown on Attachment B.

## Definitions

8. The following terms used in this Order are as defined:
  - a. Discharger - Any person who discharges waste that could affect the quality of the waters of the state, and includes any person who owns a waste management unit or who is responsible for the operation of the waste management unit (Title 27, California Code of Regulations).
  - b. Waste Management Facility - The entire parcel of property at which waste discharge operations are conducted.
  - c. Waste Management Unit (WMU) - An area of land, or a portion of Waste Management Facility at which waste is or was discharged. The term includes containment features, ancillary features for precipitation and drainage control and monitoring.
  - d. Heap Leaching - An industrial mining process to extract precious metals from ore via a series of chemical reactions that dissolve specific minerals to disassociate them from other earth materials.
  - e. Pregnant Solution - A dilute microbe solution containing dissolved precious metals generated from heap leaching.
  - f. Barren Solution- A microbe solution used to dissolve precious metals in the heap leaching process.
  - g. Closed System - A system of fluid management where no fluid discharges off site. All fluid is collected, processed and recycled within the system. The only losses are to evaporation.
  - h. Open Pits- pits excavated to extract ore from the earth for processing.
  - i. Waste Rock Storage Areas - areas where rock or minerals with no commercial value are stored.
  - j. Heap Leach - the lined areas where the precious metals are extracted from the ore using a microbe leachate solution.
  - k. Ancillary Facilities- other infrastructure to support the leaching operation.
  - l. Electrowinning- also called electroextraction, is the electro deposition of metals from their ores that have been put in solution via a process commonly referred to as leaching.
  
9. There is no discharge planned for the Picacho Gold Recovery Project. However, Heap Leach Pad 5 does have the potential to discharge and is classified as a WMU. This Order incorporates the laws and regulations as set forth in the California Water Code and combined State Water Resources Control Board/California Department of Resources Recycling and Recovery (CalRecycle) Regulations, Division 2, Title 27 (Title 27) and federal regulations under Subtitle D of the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.).

## Heap Leach Pad 5 Design

10. Heap Leach Pad 5 was previously constructed to comply with Title 27 regulations. It is approximately 52-acres in size and has a design capacity of approximately 10 million tons of ore. It is underlain with a 60-mil HDPE liner which incorporates a leachate

collection system. The surface elevation of the ground below the liner is approximately 600 feet Mean Sea Level (MSL).

### **Ore Extraction Process**

11. The existing Heap Leach Pad 5 material consist of a combination of oxide ore and non-oxide ore and will be processed as follows:
  - a. Leaching of the existing ore on Pad 5 with a mixture of water and microbes.
  - b. Collecting the effluent, via the leachate collection system, from Heap Leach Pad 5 and storing it in Pregnant Solution Tank.
  - c. Filtering the Pregnant solution using carbon adsorption to extract any gold.
  - d. Recycling the carbon filtrate to a barren tank and adjusting the leachate microbe concentrations.
  - e. Returning the adjusted microbe leachate solution to the top of Heap Leach Pad 5 for recycling through the ore.
  - f. The Discharger estimates that the gold recovery project will be completed in approximately two years. After completion of the project, the Facility will be closed and the WDRs modified or rescinded.

### **Discharge**

12. No waste discharge is planned for the WMU. All fluids will be contained within a closed system. Makeup water will periodically be added to the solution to replace water lost to evaporation and inadvertent other losses.

### **Site Closure**

13. Upon completion of the heap leach process, Heap Leach Pad 5 will be reclaimed in accordance with the Reclamation Plan Approved by Imperial County (RP#13-0001). The closure plan requires that the Heap Leach Pad 5 leaching process continue until all water in the collection tanks is evaporated. This process will reduce the quantity of water in the ore contained on Heap Leach Pad 5 to an acceptable closure level. Upon completion of the process the ore will be tested and if applicable be reclassified as Group C mining waste as defined in CCR, Title 27, Section 22480(b)(3).

### **Site Hydrogeology**

14. The occurrence of groundwater at the Picacho site is typical of groundwater occurrences in igneous rock terrains. Generally groundwater occurs only in fractured bedrock areas recharged by surface water infiltration. Past mining at the site indicates the absence of groundwater. No groundwater was encountered in the Ducina Pit, excavated to a depth of 510 feet MSL or the Apache pit which was excavated to a depth of 480 feet MSL. The only moist areas observed at the site were adjacent to major fractures and faults after rain storms. Exploration holes drilled to 500 feet below the Ducina Pit were dry during drilling and remained dry after drilling.
15. The absence of groundwater at the site is documented in the report titled Final Environmental Assessment: Picacho Study Area Exploration Drilling Project, Imperial County, California, prepared by BLM, October 2012.

16. The Discharger also drilled an exploratory borehole to assess the presence of groundwater in the project area. The surface elevation of the boring was approximately 600 MSL and the boring was advanced to approximately 450 feet below ground surface. The "Final Report for Exploratory Test Boring at the Former Picacho Mine; Winterhaven, California" details the investigation and confirms the absence of groundwater in the project area.

### **Regional Geology and Geomorphology**

17. The project site is located at the eastern margin of the Chocolate Mountains, in a basin near the confluence of the Burro and Little Picacho Washes. The Chocolate Mountains are a northwesterly trending antiform with a core of highly deformed and metamorphosed granitic and sedimentary rocks mantled by younger conglomerates and silicic volcanic rocks. The Picacho site is within the Colorado Desert geomorphic province. This is a barren region of the generally low, northwesterly trending mountains rising gradually out of broad desert basins. The area is sparsely vegetated and streams flow only during heavy storms of brief duration. The Colorado River, located approximately four and a half (4.5) miles north of the site, is the major source for supply of water for the site. Lake Enterprises of California LLC holds water rights and has assigned these rights to the Discharger for the purpose of performing the bio-leaching at the site.

### **Site Geology**

18. Heap Leach Pad 5 is underlain by alluvial gravels, volcanic rock, granitic gneiss and artificial fill.
19. The artificial fill is comprised mostly of granular materials generated from mining activities used for berms, road fill, and other miscellaneous uses. The mine run material includes the ore stacked on the various heap leach pads.

### **Climate**

20. The climate at Picacho Mine is typically arid with high temperatures (100 to 120 °F) in the summer and moderate temperatures in the winter, generally 70 to 80 °F and rarely below 32 °F. Average precipitation at the Facility is less than 3 inches per year. The annual evaporation (estimated at more than 100 inches) greatly exceeds the precipitation on an average annual basis.
21. The wind direction in the immediate vicinity of the Facility follows two general patterns:
  - a. Seasonally from fall through spring, prevailing winds are from the west and northwest. Humidity is lowest under these conditions.
  - b. Summer weather patterns are often dominated by an intense, heat-induced low pressure area that forms over the interior deserts, drawing air from south of the Facility; humidity is highest under these monsoon conditions.

## **Groundwater**

22. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan), which was adopted on November 17, 1993, and amended on November 16, 2012, designates the beneficial uses of ground and surface waters in this Region.
23. The Picacho Mine is located in the Colorado Hydrologic Unit. The beneficial use of groundwaters in the Colorado Hydrologic Unit is:
  - a. Municipal Supply (MUN)
  - b. Industrial (IND)
  - c. Agricultural (AGR)

## **NEPA/CEQA**

24. The U.S. Department of the Interior, Bureau of Land Management (BLM) has advised the Discharger that this project is not in its jurisdiction because it is on private lands. On September 10, 2014, the County of Imperial, acting as the Lead Agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), filed a Notice of Determination (NOD) that the project as approved did not have a significant effect on the environment, and adopted a mitigated negative declaration for the Picacho Gold Recovery Project. As a Responsible Agency under CEQA, the Colorado River Basin Water Board has considered the potentially significant impacts to water quality identified and mitigated by the BLM and County of Imperial. Colorado River Basin Water Board staff has concluded that the currently proposed Picacho Gold Recovery Project falls within the scope of the environmental review conducted. The Colorado River Basin Water Board has determined that the Discharger's compliance with the WDRs will detect any impacts to water quality associated with the proposed project.

## **Imperial County Permits**

25. On September 10, 2014, the Imperial County Planning and Development Services Department approved Conditional Use Permit #13-0008 for the Picacho Gold Recovery Project (Reclamation Plan RP #13-0001).

## **Monitoring Plan**

26. The monitoring and reporting requirements in Monitoring and Reporting Program R7-2014-0060, incorporated herein and made a part of this Board Order by reference, are necessary to determine compliance with these WDR's. The State Water Resource Control Board's electronic database, GeoTracker Information Systems, facilitates the submittal and review of monitoring and reporting.

## **Financial Assurance**

27. The Discharger will submit to the Colorado River Basin Water Board evidence of Financial Assurance for Closure and Post-Closure Maintenance, commencing with Sections 22207 and 22212 of Title 27, CCR, respectively.

### **Notifications**

28. The Colorado River Basin Water Board has notified the Discharger and all known interested agencies and persons of its intent to implement Waste Discharge Requirements for this discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.
29. The Colorado River Basin Water Board, in a public meeting, heard and considered all comments pertaining to this discharge.

### **Clean Water Policy**

30. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

**IT IS HEREBY ORDERED** that in order to meet the provisions contained in Division 7 of the California Water Code, the Discharger shall comply with the following:

#### **A. Prohibitions**

1. The discharge of waste to land not owned and controlled by the Discharger is prohibited.
2. The Discharger shall neither cause nor contribute to the following conditions:
  - a. Contamination or pollution of ground water.
  - b. Increase in the concentration of waste constituents in, soil or other geologic material outside of the WMU, if such waste constituents could migrate to waters of the state, in either liquid or gaseous phase, and cause contamination, pollution, or nuisance.
3. The discharge of waste to surface water, surface water drainage courses, or to ground water is prohibited.
4. The discharge or deposit of wastes that could cause erosion or decay, or otherwise reduce or impair the integrity of containment structures is prohibited.
5. Odors, vectors and other nuisances of waste origin beyond the Facility boundary are prohibited.

#### **B. Specifications**

1. The treatment or disposal of wastes at this WMU shall not cause pollution or nuisance as defined in Sections 13050(l) and 13050(m) of Division 7 of the California Water Code.
2. The processing area(s) shall be protected from any run-on, washout, or erosion, which could occur as a result of a storm having a predicted frequency of once in 100 years.

3. The heap leach processing area shall be diked and containment basins shall be provided to impound all storm water drainage from the piles and from the microbe solution collection and transport facilities during a maximum probable one-hour storm, as set forth in the Department of Water Resources Bulletin No. 195 for the average of El Centro, California and Yuma, Arizona. In addition, containment capacity shall be provided for 24 hours of solution drainage from the piles. Also, standby emergency facilities shall be available to assure continual circulation of the leaching solution if at any time it is determined that a planned processing configuration or rate could, in an emergency, result in a flow in excess of existing basin storage capacity.
4. There shall be no discharge of process wastewater at any location without prior approval from the Colorado River Basin Water Board's Executive Officer.
5. All drainage and collection facilities used to contain or transport leaching solution shall be effectively sealed to prevent leakage of these liquids.
6. Leached, or residual, ore, and any other "waste" material impacted by process solution, shall not be placed in perennial, intermittent, or ephemeral stream channels unless provision is made to divert runoff around the waste in a non-erosive manner. Waste shall not be placed where it can be eroded by stream flows or cause accelerated stream bank erosion.
7. All industrial waste materials not compliant with CCR, Title 27, Section 22480(b)(3) Group C mining waste shall be discharged at a WMU approved by the Colorado River Basin Water Board's Executive Officer for accepting such waste.
8. Adequate measures shall be taken to assure that unauthorized persons are effectively prohibited from entering from the processing areas.

### **C. Provisions**

1. The Discharger shall comply with Monitoring and Reporting Program (MRP) R7-2014-0060, described in Part II of the MRP, and future revisions thereto, as specified by the Colorado River Basin Water Board's Executive Officer.
2. Within **180 days** of ceasing operations the Discharger shall submit a closure work plan to the Executive Officer of the Colorado River Basin Water Board for review and approval.
3. Prior to any modification in this facility which would result in material change in the quality or quantity of wastewater used, treated, or discharged, or any material change in the location of discharge, the discharge shall report all pertinent information in writing to the Colorado River Basin Water Board and obtain revised requirements before any modifications are implemented.
4. Prior to any change in ownership or management of this operation, the Discharger shall transmit a copy of this Order to the succeeding owner/operator, and forward a copy of this transmittal letter to the Colorado River Basin Water Board.

5. The Discharger shall ensure that all site operations personnel are familiar with the content of this Order, and shall maintain a copy of this Order at the site.
6. This Order does not authorize violation of any federal, state, or local laws or regulations.
7. The Discharger shall allow the Colorado River Basin Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the premises regulated by this Order, or the place where records must be kept under the conditions of this order;
  - b. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Order;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
  - d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at this location.
8. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurances procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order.
9. This Order does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
10. The Discharger shall comply with the following:
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least 5 years from the date of sampling, measurement, reports or application. This period may be extended by request of the Colorado River Basin Water Board's Executive Officer at any time.
  - c. Records of monitoring information shall include:
    - i. The date, exact place, and time of the sampling or measurements.

- ii. The individual(s) who performed the sampling or measurements.
  - iii. The date(s) analyses were performed.
  - iv. The individual(s) who performed the analyses.
  - v. The results of such analyses.
- d. Monitoring must be conducted according to test procedures under 40 CFR Part 136, unless test procedures have been specified in this Order.
11. All regulated disposal systems shall be readily accessible for sampling and inspection.
  12. The Discharger is the responsible party for the waste discharge requirements, and the monitoring and reporting program for the facility. The Discharger shall comply with all conditions of these waste discharge requirements. Violations may result in enforcement actions, including Colorado River Basin Water Board Orders or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Colorado River Basin Water Board.
  13. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the Discharger to achieve compliance with conditions of this Order.
  14. The Discharger shall retain records of all monitoring information including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, or report. This period may be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Colorado River Basin Water Board's Executive Officer.
  15. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with Chapter 30, Division 3, Title 23 of the California Code of Regulations (CCR), as groundwater raw data uploads electronically over the internet into the State Water Board's GeoTracker <https://geotracker.waterboards.ca.gov/> database. Documents that are normally mailed by the Discharger, such as regulatory documents, narrative technical monitoring program reports, and such reports submissions, materials, data, and correspondence, to the Colorado River Basin Water Board shall also be uploaded into GeoTracker in the appropriate Microsoft software application, such as word, excel, or an Adobe Portable Document Format (PDF) file. Documents that are too large or that cannot be easily converted to an electronic format or cannot be uploaded into GeoTracker should be transferred to a disk and emailed to [RB7-wdrs\\_paperless@waterboards.ca.gov](mailto:RB7-wdrs_paperless@waterboards.ca.gov) or otherwise hard copy mailed to the Colorado River Basin Water Board office in Palm Desert. The Facility is identified in GeoTracker by the Global ID L10006029302 and in CIWQS by WDID No. 7B 13 2141 006.
  16. Pursuant to CCR, Title 27, section 21710(d), any report submitted in compliance with CCR, Title 27, and this Order, which proposes a design or design change that might

affect containment features, erosion and drainage control systems or monitoring systems, shall be approved by a civil engineer or a certified engineering geologist appropriately licensed by the State of California. The Discharger shall provide documentation that plans and reports required under this M&RP are prepared by or under the direction of, appropriately qualified professionals. CCR, Title 27, sections 20324(b) and 21090(b)(1)(C); and the California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. A statement of qualifications and license numbers of the responsible lead professionals shall be included in all plans and reports submitted by the Discharger. The lead professional shall sign and affix their license stamp to the report, plan or document.

17. The Discharger may be required to submit technical reports as directed by the Colorado River Basin Water Board's Executive Officer.
18. The Discharger shall maintain a ground water monitoring well network, as approved by the Colorado River Basin Water Board's Executive Officer.
19. At least 10 days prior to commencement of operations of any new facility or major process feature, the Discharger shall submit a certificate to the Colorado River Basin Water Board, signed by a California Registered Civil Engineer or Certified Engineering Geologist, stating that the pads, containment basins, leakage detection systems, flood protection and attendant facilities, and disposal areas are constructed in accordance with the technical report approved by the Colorado River Basin Water Board's Executive Officer to meet the requirement of this Board Order.
20. The Discharger shall submit to the Colorado River Basin Water Board, at least 30 days prior to commencement of the herein stated operations, written adequate financial assurances, as determined by the Colorado River Basin Water Board's Executive Officer, to demonstrate that the Discharger has sufficient financial means to ensure it will complete the project, including for Closure and Post-Closure Maintenance, pursuant to Sections 22207 and 22212 of Title 27, CCR, respectively.
21. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purpose of this Board Order.
22. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of the Discharger.

#### **Certification**

I, Robert Perdue, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on November 13, 2014.

  
ROBERT PERDUE  
Executive Officer